

A NOTE ON THE NESTING HABITS OF EXOMALOPSIS
SOLANI COCKERELL

(Hymenoptera, Anthophoridae)¹

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The tribe Exomalopsini is of particular interest to students of bees because of an apparently close morphological relationship to parasitic bees of the Nomadini. Two genera occur in the United States, *Exomalopsis* and *Ancyloscelis*, but with the exception of an observation by Hicks (1936) apparently the nesting habits of our species have not been described. Hicks reported as follows: "Some notes on the habits of the rare bee, *Exomalopsis torticornis* Ckll. (det. Cockerell), were taken on June 24, 1926 at Los Angeles, California. Four pollen laden females were seen, within a few minutes, entering a common nest entrance into the ground. Each came out, in turn, after depositing the provisions and was caught at that time. The nest was next dug out. The tunnel leading from the entrance was in very dry and in exceedingly hard soil. These conditions made it difficult to follow in digging, although I was able to trace its course for a few inches. It extended straight into the earth for one inch, then turned to one side for one and one-half inches where it again continued straight down for two inches. The continuation at this point was lost but not until it had been definitely shown that there was one tunnel and that all the bees were using it. The nests may or may not have been separate. This important point needs further investigation."

Claude-Joseph (1926) found individuals of *Exomalopsis caerulea* Friese in Chile using a common nest entrance but preparing separate galleries. Each bee provisions a linear series of three to six cells at an average depth of 20 cm. The jug-shaped cells are smooth and varnished interiorly and are closed by a thick clay cap. The egg is placed on top of the moistened pollen ball. The larva consumes the pollen ball in about six weeks and over-winters in a coriaceous cocoon.

During the second week of August, 1954, in an area nine miles southwest of Fresnillo, Zacatecas, Mexico, where anthophorid bees

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(*Diadasia*, *Emphor*, *Melissodes*, *Anthophora*, *Tetralonia*, and *Hemisia*) were nesting abundantly, a few females of *Exomalopsis solani* Cockerell were observed taking pollen from flowers of *Solanum eleagnifolium* Cav. Although this area was carefully searched and bees intensely studied for a week, no *Exomalopsis* nesting sites were discovered. One female was captured while entering an abandoned burrow of *Emphor bombiformis* (Cresson), but because of the large diameter of the burrow the association was considered accidental and no particular significance was attached to the observation. Later, however, another observation was made in connection with a bee burrow which had been "pointed out" to us by a parasitic female of the genus *Nomada* (*Micronomada*) which clearly indicated that it was a known host burrow. The *Nomada* was captured and two days later the burrow was excavated. The entrance to this burrow was at the bottom of a shallow cavity in the soil and the shaft proceeded directly downward for fourteen and one-half centimeters and then turned abruptly on the horizontal for three centimeters. At the end of the burrow a worn female of *Exomalopsis solani* was apparently digging. With the assistance of another female *Nomada* a second nest of this type was located and determined to be that of *Agapostemon texanus* Cresson. Thus the *Exomalopsis* had apparently appropriated an abandoned (or perhaps active) *Agapostemon* burrow.

Although our very limited observations can be regarded as little more than suggestive, it does appear possible that *Exomalopsis solani* regularly appropriates abandoned (perhaps also active) burrows of various genera of bees. If this proves to be true it permits speculation as to the origin of a parasitic habit in this group of bees which might have given rise to the related Nomadini. *Exomalopsis caerulea* and *E. torticornis* are in different species groups or subgenera from *E. solani* (*Exomalopsis s. str.*).

LITERATURE CITED

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